PATENT COOPERATION TREATY

PCT

TRANSLATION INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

	nt's or agent's file referenc F-051PCT	FOR FURTHE	R ACTION	See Form PCT/IPEA/416					
Internati	onal application No.	International filing	g date (day/month/year)	Priority date (day/month/year)					
PCT	/JP2004/0173	313 15.11.20	004	15.11.2003					
International Patent Classification (IPC) or national classification and IPC G03F7/004, G03F7/38, G03F7/40, B82B3/00, G02B1/02									
Applicant NATIONAL INSTITUTE FOR MATERIALS SCIENCE									
1.	 This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 								
2.	This REPORT consists of	of a total of 7	sheets, includi	ng this cover sheet.					
3.	This report is also accom	npanied by ANNEXES, comprisi	ng:						
	a. (sent to the a	pplicant and to the Internationa	Bureau) a total of	sheets, as follows:					
	sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).								
	sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.								
	b. (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s))								
	, containing a sequence listing and/or tables								
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4.		cations relating to the following							
	Box No. I	Basis of the report							
	Box No. II	Priority							
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	Box No. IV	_	vinitegard to hoverry, miver	arve seep and inclusival apprecionity					
	Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement								
	Box No. VI Certain documents cited								
	Box No. VII Certain defects in the international application								
	Box No. VIII Certain observations on the international application								
Date of s	submission of the demand		Date of completion of t	his report					
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Name an	d mailing address of the I	reauly	Authorized officer						
Facsimile No			Telephone No	Telephone No.					

International application No.
PCT/JP2004/017313

Box	No. I	F	Basis of the report						
1.			d to the language, this report is based on the international application in the language in which it was filed, unless otherwise under this item.						
			report is based on translations from the original language into the following language h is the language of a translation furnished for the purposes of:						
		int	ternational search (Rule 12.3 and 23.1(b))						
		pul	publication of the international application (Rule 12.4)						
		int	international preliminary examination (Rule 55.2 and/or 55.3)						
2.	recei		rd to the elements of the international application, this report is based on (replacement sheets which have been furnished to the Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the other than the original transfer of the original transfer or the original transfe						
		_	nternational application as originally filed/furnished						
	\boxtimes		escription:						
		pages	1-8		as originally filed/furnished				
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		the claim							
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		sheets*		received by this Authority on					
		a sequen	uence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.						
3.		The ame	amendments have resulted in the cancellation of:						
		the	the description, pages						
		the	the claims, nos.						
		the	the drawings, sheets/figs						
		the	the sequence listing (specify):						
		any	y table(s) related to sequence listing (specify):						
4.			report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).						
		the	the description, pages						
			the claims, nos.						
			the drawings, sheets/figs						
			the sequence listing (specify):						
			any table(s) related to sequence listing (specify):						
*	If ite		es, some or all of those sheets may be marked "supe						
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PCT/JP2004/017313

2. Citations and explanations (Rule 70.7)

Document 1: JP 2002-363209 A (Fuji Photo Film Co., Ltd.),
18 December 2002

Document 2: JP 2002-83688 A (JSR Corp.), 22 March 2002

Document 3: JP 8-22116 A (Kobe Steel, Ltd.), 23 January 1996

Claim 1

Document 1 (paragraphs [0222] to [0232]), document 2 (paragraphs [0081] to [0087]) and document 3 (paragraphs [0013] to [0021]) disclose pattern formation methods that comprise a step for irradiating light onto a photocurable resin that contains organic molecules (e.g. the "spectral sensitization pigment," the "organic boron compound" and the like disclosed in document 1; the "ultraviolet absorber" and the like disclosed in document 2; or the "ladder silicone-based SOG" and the like disclosed in document 3) in order to harden said photocurable resin in a prescribed pattern upon a substrate, and a step for eliminating the unhardened portions of said photocurable resin. Therein, it is apparent that the pattern formation methods disclosed in documents 1 to 3 affix the organic molecules that are present in the hardened portions of the photocurable

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

resin to the substrate in a prescribed pattern.

In addition, the organic molecules that are present in the photocurable resins disclosed in documents 1 to 3 do not react with said photocurable resins, and it is common for patterns that are formed from photocurable resins to have a micro/nano scale. Such being the case, the invention set forth in claim 1 lacks novelty and does not involve an inventive step.

Claims 2 to 4

Techniques for irradiating light upon a photocurable resin in a prescribed pattern wherein the irradiation light is focused light or a laser beam and said irradiation light is irradiated upon the photocurable resin through a mask pattern are commonly used in the technical field in question, and thus it would have been obvious to a person skilled in the art to configure so that light is irradiated upon the photocurable resins disclosed in documents 1 to 3 by means of the techniques in question. Such being the case, the invention set forth in claims 2 to 4 does not involve an inventive step.

Claim 5

The organic molecules present in the photocurable resins disclosed in documents 1 to 3 are clearly capable of absorbing the light that is irradiated thereupon; therefore, the invention set forth in claim 5 lacks novelty and does not involve an inventive step.

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Claim 6

Document 1 (paragraphs [0222] to [0232]), document 2 (paragraphs [0081] to [0087]) and document 3 (paragraphs [0013] to [0021]) disclose pattern formation methods that comprise a step for hardening a photocurable resin in a prescribed pattern by means of irradiation with light, and a step for bringing the photocurable resin into contact with a developing solution that contains organic molecules.

When the photocurable resin is brought into contact with the developing solution, it is natural for the organic molecules that are present in the developing solution to penetrate into the photocurable resin, and the organic molecules that are present in the developing solutions disclosed in documents 1 to 3 do not react with the photocurable resin. Furthermore, it is common for patterns that are formed from photocurable resins to have a micro/nano scale. Such being the case, the invention set forth in claim 6 lacks novelty and does not involve an inventive step.

Claim 7

The technique for bringing a photocurable resin into contact with a developing solution by immersing the photocurable resin within the developing solution is commonly used in the technical field in question. Such being the case, the feature wherein the photocurable resins disclosed in documents 1 to 3 are brought into contact with a developing solution by means of the technique in question cannot be found to involve an inventive step.

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Claims 8 to 11

Techniques for irradiating light upon a photocurable resin in a prescribed pattern wherein the irradiation light is focused light or a laser beam, said light is irradiated upon the photocurable resin through a mask pattern, and the shape of the beam of focused light is used to control the shape of the hardened portion of the photocurable resin are commonly used in the technical field in question, and thus it would have been obvious to a person skilled in the art to configure so that light is irradiated upon the photocurable resins disclosed in documents 1 to 3 by means of the techniques in question. Such being the case, the invention set forth in claims 8 to 11 does not involve an inventive step.

Claim 12

A person skilled in the art could determine the appropriate number of repetitions of the pattern formation method in order to accommodate the number of colors that are necessary to form the pattern and the like. Therefore, modifying the pattern formation methods disclosed in documents 1 to 3 so that the pattern formation step is repeated a plurality of times in order to affix each of the plurality of types of organic molecules in different hardened portions of the photocurable resin cannot be found to involve an inventive step.

Claim 13

The organic molecules that are present in the photocurable resins disclosed in documents 1 to 3 are functional molecules; therefore, the invention set forth

International application No.
PCT/JP2004/017313

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in claim 13 lacks novelty and does not involve an inventive step.

Claim 14

Document 3 (paragraph [0001] and the like) suggests that articles with a pattern that was formed from a photopolymerizable resin can be used as micro/nano-scale articles. Therefore, the feature wherein the articles disclosed in document 3 are used as micro/nano-scale articles cannot be found to involve an inventive step.